BEFORE THE
PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2017-3-E

In the Matter of	)	
Annual Review of Base Rates	)	**DIRECT TESTIMONY OF**
for Fuel Costs for	)	**BRETT PHIPPS FOR**
Duke Energy Carolinas, LLC	)	**DUKE ENERGY CAROLINAS, LLC**

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Brett Phipps. My business address is 526 South Church Street, Charlotte, North Carolina 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed as Managing Director, Fuel Procurement, for Duke Energy Corporation ("Duke Energy"). In that capacity, I directly manage the organization responsible for the purchase and delivery of coal, natural gas, and fuel oil to Duke Energy's regulated generation fleet, including Duke Energy Carolinas, LLC ("Duke Energy Carolinas," "DEC," or the "Company") and Duke Energy Progress, LLC ("DEP") (collectively, the "Utilities," or the "Companies"). In addition to fuels, I also supervise the procurement of all reagents and emissions.

Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.

A. I have a Bachelor of Science degree in Chemistry from Marshall University. I began my career in the mining industry in 1993 where I held various roles associated with surface mining operations. I joined Progress Energy in 1999, holding roles in terminal operations and sales and marketing for the unregulated business. I transitioned to the regulated utility in 2005 where I worked in various fuels procurement functions and leadership roles. I joined Duke Energy in July 2012 and am currently Managing Director, Fuels Procurement. I am a member of the American Coal Council, The Coal Institute, the Lexington Coal Exchange, Southern Gas Association, and the American Gas Association.

Q. HAVE YOU TESTIFIED OR SUBMITTED TESTIMONY BEFORE THIS COMMISSION IN ANY PRIOR PROCEEDINGS?

A. Yes. I testified before the Public Service Commission of South Carolina ("PSCSC" or "Commission") in DEP's 2017 fuel and environmental cost recovery proceeding in Docket No. 2017-1-E.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to describe DEC's fossil fuel purchasing practices, provide fossil fuel costs for the period June 1, 2016 through May 31, 2017 ("review period") versus June 1, 2015 through May 31, 2016 ("prior review period"), and describe changes forthcoming in the period of October 1, 2017 through September 30, 2018 ("billing period"). I also provide an update on the status of guaranteed merger fuel-related savings that Duke Energy is delivering to its South Carolina and North Carolina customers pursuant to the merger agreement between Duke Energy and Progress Energy, Inc. ("Merger").

Q. YOUR TESTIMONY INCLUDES TWO EXHIBITS. WERE THESE EXHIBITS PREPARED BY YOU OR AT YOUR DIRECTION AND UNDER YOUR SUPERVISION?

A. Yes. These exhibits were prepared at my direction and under my supervision, and consist of Phipps Exhibit 1, which summarizes the Company's Fossil Fuel Procurement Practices, and Phipps Exhibit 2, which summarizes total monthly natural gas purchases and monthly contract and spot coal purchases during the review period and the prior review period.

Q. HOW DOES THE COMPANY OPERATE ITS PORTFOLIO OF GENERATION ASSETS TO RELIABLY AND ECONOMICALLY SERVE ITS CUSTOMERS?

A. Both DEC and DEP utilize the same process to ensure that the assets of the Companies are reliably and economically available to serve their respective customers. To that end, both companies consider factors that include, but are not limited to, the latest forecasted fuel prices, transportation rates, planned maintenance and refueling outages at the generating units, estimated forced outages at generating units based on historical trends, generating unit performance parameters, and expected market conditions associated with power purchases and off-system sales opportunities in order to determine the most economic and reliable means of serving their customers.

Q. PLEASE DESCRIBE DEC'S DELIVERED COST OF COAL AND NATURAL GAS DURING THE REVIEW PERIOD.

A. The Company's average delivered cost of coal per ton for the review period was $78.29 per ton, compared to $87.79 per ton in the prior review period, representing a decrease of 11 percent. This includes an average transportation cost of $26.42 per ton in the review period, compared to $23.84 per ton in the prior review period, representing an increase of approximately 11 percent. The Company's average price of gas purchased for the review period was $3.54 per Million British Thermal Units ("MMBtu"), compared to $3.35 per MMBtu in the prior review period, representing an increase of 6 percent. The cost of gas includes gas supply, transportation, storage and financial hedging.

DEC's coal burn for the review period was 10.6 million tons, compared to a coal burn of 8.8 million tons in the prior review period, representing an increase of 20 percent. The Company's natural gas burn for the review period was 84.0 MMBtu compared to a gas burn of 87.0 MMBtu in the prior review period, representing a decrease of 3 percent. The primary contributing factors were changes in commodity prices combined with weather-driven demand.

Q. PLEASE DESCRIBE THE LATEST TRENDS IN COAL AND NATURAL GAS MARKET CONDITIONS.

A. Coal markets continue to be impacted by a number of factors, including: (1) uncertainty around proposed, imposed, and stayed U.S. Environmental Protection Agency ("EPA") regulations for power plants; (2) continued abundant natural gas supply and storage resulting in lower natural gas prices combined with installation of new combined cycle ("CC") generation by utilities, especially in the Southeast, which has also lowered overall coal demand; (3) continued changes in demand for global markets for both steam and metallurgical coal; (4) uncertainty surrounding regulations for mining operations; and, (5) the on-going financial viability of many of the Company's coal suppliers.

With respect to natural gas, the nation's natural gas supply has grown significantly over the last several years and producers continue to enhance production techniques, increase efficiencies, and lower production costs. In the shorter term, natural gas prices are reflective of the dynamics between supply and demand factors, such as seasonal weather and overall storage inventory balances. Over the longer term planning horizon, natural gas supply is projected to continue to

increase along with the needed pipeline infrastructure to move the growing supply to meet demand related to power generation, liquefied natural gas exports and pipeline exports to Mexico.

Q. WHAT ARE THE PROJECTED COAL AND NATURAL GAS CONSUMPTIONS AND COSTS FOR THE BILLING PERIOD?

A. DEC's current coal burn projection for the billing period is 10.1 million tons compared to 10.6 million tons consumed during the review period. DEC's billing period projections for coal generation may be impacted due to changes from, but not limited to, the following factors: delivered natural gas prices versus the average delivered cost of coal, volatile power prices, and electric demand. Combining coal and transportation costs, DEC projects average delivered coal costs of approximately $72.67 per ton for the billing period compared to $78.29 per ton in the review period. This cost, however, is subject to change based on, but not limited to, the following factors: (1) exposure to market prices and their impact on open coal positions; (2) the amount of non-Central Appalachian coal DEC is able to consume; (3) performance of contract deliveries by suppliers and railroads, which may not occur despite DEC's strong contract compliance monitoring process; (4) changes in transportation rates; and (5) potential additional costs associated with suppliers' compliance with legal and statutory changes, the efforts of which can be passed on through coal contracts.

DEC's current natural gas burn projection for the billing period is approximately 112.5 MMBtu, which is an increase from the 84.0 MMBtu consumed during the review period. The net increase in DEC's overall natural gas burn

projections for the billing period versus the review period is driven by the new Lee combined cycle facility which is scheduled to be commercially available in late 2017. The current average forward Henry Hub price for the billing period is $3.05 per MMBtu, compared to $2.97 per MMBtu in the review period. Projected burn volumes will vary based on factors such as, but not limited to, changes in commodity prices and weather driven demand.

Q. WHAT STEPS IS DEC TAKING TO MANAGE PORTFOLIO FUEL COSTS?

A. The Company continues to maintain a comprehensive coal and natural gas procurement strategy that has proven successful over the years in limiting average annual fuel price changes while actively managing the dynamic demands of its fossil fuel generation fleet in a reliable and cost effective manner. Aspects of this procurement strategy include having an appropriate mix of contract and spot purchases for coal, staggering coal contract expirations which thereby limit exposure to market price changes, diversifying coal sourcing as economics warrant, as well as working with coal suppliers to incorporate additional flexibility into their supply contracts. The Company expects to address any spot and long-term coal requirements throughout this year with any potential competitively bid purchases, if made, taking into account projected coal burns, as well as coal inventory levels.

The Company has implemented natural gas procurement practices that include periodic Request for Proposals and short-term market engagement activities to procure and actively manage a reliable, flexible, diverse, and competitively priced natural gas supply that includes contracting for volumetric optionality in order to

provide flexibility in responding to changes in forecasted fuel consumption. Lastly, DEC continues to maintain a short-term natural gas hedging plan to manage fuel cost risk for customers via a disciplined, structured execution approach. DEC continues to monitor and make adjustments as necessary to its natural gas hedging program.

Q. PLEASE PROVIDE AN UPDATE ON THE STATUS OF THE GUARANTEED MERGER FUEL-RELATED SAVINGS THE COMPANY HAS ACHIEVED THUS FAR FOR ITS RETAIL CUSTOMERS.

A. During September 2016, the Utilities met the guaranteed merger savings target of $721.8 million established pursuant to both the merger agreement between Duke Energy and Progress Energy, Inc., and the merger agreement between Duke Energy and Piedmont Natural Gas Company, Inc. The combined merger savings through September totaled $723 million, of which DEC's South Carolina retail share was $109 million.

Q. DOES THIS CONCLUDE YOUR PRE-FILED DIRECT TESTIMONY?

A. Yes, it does.

Duke Energy Carolinas, LLC Fossil Fuel Procurement Practices

Coal

- Near and long-term coal consumption is forecasted based on inputs such as load projections, fleet maintenance and availability schedules, coal quality and cost; environmental permit and emissions considerations; and wholesale energy imports and exports.
- Station and system inventory targets are developed to provide reliability, insulation from short-term market volatility, and sensitivity to evolving coal production and transportation conditions. Inventories are monitored continuously.
- On a continuous basis, existing purchase commitments are compared with consumption and inventory requirements to ascertain additional needs.
- All qualified suppliers are invited to participate in proposals to satisfy additional or contract needs.
- Spot market solicitations are conducted on an on-going basis to supplement contract purchases.
- Contracts are awarded based on the lowest evaluated offer, considering factors such as price, quality, transportation, reliability and flexibility.
- Delivered coal volume and quality are monitored against contract commitments. Coal and freight payments are calculated based on certified scale weights and coal quality analysis meeting ASTM standards as established by ASTM International.

Gas

- Near and long-term natural gas consumption is forecasted based on inputs such as load projections, commodity and emission prices, and fleet maintenance and availability schedules.
- Physical procurement targets are developed to procure a cost effective and reliable natural gas supply.
- Over time, short-term and long-term Requests for Proposals and market solicitations are conducted with potential suppliers to procure the cost competitive, secure, and reliable natural gas supply, firm transportation, and storage capacity needed to meet forecasted gas usage.
- Short-term and spot purchases are conducted on an on-going basis to supplement term natural gas supply.
- On a continuous basis, existing purchases are compared against forecasted gas usage to ascertain additional needs.
- Natural gas transportation for the generation fleet is obtained through a mix of long term firm transportation agreements, and shorter term pipeline capacity purchases.
- A targeted percentage of the natural gas fuel price exposure is managed via a rolling 36-month structured financial natural gas hedging program.
- Through the Asset Management and Delivered Supply Agreement between Duke Energy Carolinas, LLC ("DEC") and Duke Energy Progress, LLC implemented on January 1, 2103, DEC serves as the designated Asset Manager that procures and manages the combined gas supply needs for the combined Carolinas gas fleet.

Fuel Oil

- No. 2 fuel oil is burned primarily for initiation of coal combustion (light-off at steam plants) and in combustion turbines (peaking assets).
- All No. 2 fuel oil is moved via pipeline to applicable terminals where it is then loaded on trucks for delivery into the Company's storage tanks. Because oil usage is highly variable, the Company relies on a combination of inventory, responsive suppliers with access to multiple terminals, and trucking agreements to manage its needs. Replenishment of No. 2 fuel oil inventories at the applicable plant facilities is done on an "as needed basis" and coordinated between fuel procurement and station personnel.
- Formal solicitations for supply may be conducted as needed with an emphasis on maintaining a network of reliable suppliers at a competitive market price in the region of our generating assets.

DUKE ENERGY CAROLINAS
Summary of Coal Purchases
Twelve Months Ended May 2017 & 2016
Tons

Line No.	Month	Contract (Tons)	Net Spot Purchase and Sales (Tons)	Total (Tons)
1	June 2016	589,911	0	589,911
2	July	632,526	32,792	665,318
3	August	776,090	102,042	878,132
4	September	706,719	124,390	831,109
5	October	670,555	111,340	781,895
6	November	618,162	86,162	704,324
7	December	418,820	169,306	588,126
8	January 2017	492,404	285,634	778,038
9	February	769,679	34,968	804,647
10	March	797,907	47,438	845,345
11	April	762,700	122,152	884,852
12	May	616,088	196,451	812,539
13	**Total** (Sum L1:L12)	**7,851,561**	**1,312,675**	**9,164,236**

Line No.	Month	Contract (Tons)	Net Spot Purchase and Sales (Tons)	Total (Tons)
14	June 2015	681,100	45,735	726,835
15	July	619,993	99,880	719,873
16	August	833,563	267,437	1,101,000
17	September	924,552	434,018	1,358,570
18	October	738,103	256,838	994,941
19	November	539,895	72,700	612,595
20	December	759,004	117,884	876,888
21	January 2016	543,687	81,832	625,519
22	February	565,267	46,476	611,743
23	March	577,532	50,957	628,489
24	April	356,508	0	356,508
25	May	489,004	0	489,004
26	**Total** (Sum L14:L25)	**7,628,208**	**1,473,757**	**9,101,965**

DUKE ENERGY CAROLINAS
Summary of Gas Purchases
Twelve Months Ended May 2017 & 2016
MBTUs

Line No.	Month	MBTUs
1	June 2016	6,762,343
2	July	8,910,962
3	August	9,041,077
4	September	8,688,003
5	October	5,484,777
6	November	8,788,064
7	December	6,064,292
8	January 2017	6,197,082
9	February	6,087,279
10	March	6,952,395
11	April	4,229,605
12	May	6,556,798
13	**Total** (Sum L1:L12)	**83,762,677**

Line No.	Month	MBTUs
14	June 2015	8,969,807
15	July	7,826,518
16	August	7,307,613
17	September	7,549,884
18	October	6,425,065
19	November	6,436,914
20	December	6,773,479
21	January 2016	6,527,788
22	February	6,951,108
23	March	9,033,435
24	April	7,133,241
25	May	5,648,200
26	**Total** (Sum L14:L25)	**86,583,052**